

WHAT IS CLAIMED IS:

1. A disaster recovery method in which at occurrence of a failure in a primary database processing system, database processing is continuously executed by replacing the primary database processing system with a secondary database processing system, comprising the steps of:

receiving, by a storage unit in a primary system, namely, by a primary storage unit, an access request sent from a computer and judging to determine whether the access request is a write request or a read request;

judging, when the access request is a write request, to determine whether or not contents of the write request are log information indicating contents of database processing executed by a computer;

converting, when the contents of the write request are the log information, position information indicated in the log information into physical position information in the primary storage unit using a conversion table indicating a correspondence between logical position information recognized in the database processing on a side of the computer and physical position information in the primary storage unit;

modifying, according to the contents of the log information, data in a database area of the primary storage unit represented by the physical position information converted using the conversion table; and

transmitting the access request to a storage unit of a secondary system, namely, a secondary storage unit.

2. A disaster recovery method in which at occurrence of a failure in a primary database processing system, database processing is continuously executed by replacing the primary database processing system with a secondary database processing system, comprising the steps of:

receiving, by a storage unit of a secondary system, namely, a secondary storage unit, an access request sent from a computer to a storage unit of a primary system, namely, a primary storage unit;

judging to determine whether the access request is a write request or a read request;

judging, when the access request is a write request, to determine whether or not contents of the write request are log information indicating contents of database processing executed by a computer;

converting, when the contents of the write request are the log information, position information indicated in the log information into physical position information in the secondary storage using a conversion table indicating a correspondence between logical position information recognized in the database processing on a side of the computer and physical position information in the secondary storage unit; and

modifying, according to the contents of the

log information, data in a database area of the secondary storage unit represented by the physical position information converted using the conversion table.

3. A disaster recovery method in which at occurrence of a failure in a primary database processing system, database processing is continuously executed by replacing the primary database processing system with a secondary database processing system, comprising the steps of:

transmitting, when it is required to force contents of a database buffer of a computer in a storage unit of a primary system, namely, a primary storage unit, a write request of log information indicating contents of database processing executed for the database buffer from the computer to the primary storage unit;

transmitting, when data as an access object in the database processing is absent from the database buffer, a read request of the data from the computer to the primary storage unit;

receiving, by the primary storage unit, an access request sent from a computer and judging to determine whether the access request is a write request or a read request;

judging, when the access request is a write request, to determine whether or not contents of the write request are the log information;

converting, when the contents of the write request are the log information, position information indicated in the log information into physical position information in the primary storage unit using a first conversion table indicating a correspondence between logical position information recognized in the database processing on a side of the computer and physical position information in the primary storage unit;

modifying, according to the contents of the log information, data in a database area of the primary storage unit represented by the physical position information converted using the first conversion table;

transmitting the access request to a storage unit of a secondary system, namely, a secondary storage unit;

receiving, by the secondary storage unit, the access request thus transmitted;

judging to determine whether the access request is a write request or a read request;

judging, when the access request is a write request, to determine whether or not contents of the write request are the log information;

converting, when the contents of the write request are the log information, position information indicated in the log information into physical position information in the secondary storage unit using a second conversion table indicating a correspondence between logical position information recognized in the

database processing on a side of the computer and physical position information in the secondary storage unit; and

modifying, according to the contents of the log information, data in a database area of the secondary storage unit represented by the physical position information converted using the second conversion table.

4. A disaster recovery method according to claim 1, further comprising the steps of:

judging, when the access request is a read request, to determine whether or not log information received according to a preceding write request received before the access request includes log information to modify data as an object of the read request; and

modifying, when the log information thus received includes log information to modify the data of the read request, the data of the read request according to contents of the log information.

5. A disaster recovery method according to claim 1, further comprising the step of modifying the data using log information selected from the log information, the log information belonging to a transaction committed in the database processing system.

6. A disaster recovery method according to claim 1, further comprising the step of concurrently

modifying the data of the database area for each physical device corresponding to the data.

7. A disaster recovery method according to claim 1, further comprising the steps of:

transmitting to the secondary storage unit only a write request of log information, the write request being selected from the access request sent from the computer to the primary storage unit; and

modifying the database area of the secondary storage unit according to contents of the log information.

8. A disaster recovery method according to claim 1, further comprising the step of transmitting to the secondary storage unit an access request sent from the computer to the primary storage unit, the access request including a read request to read data from the database area.

9. A primary storage unit of a primary system for continuously executing, at occurrence of a failure in a primary database processing system, database processing by replacing the primary database processing system with a secondary database processing system, comprising:

a control processing portion for receiving an access request sent from a computer and judging to determine whether the access request is a write request or a read request;

a modify processing portion for judging, when

the access request is a write request, to determine whether or not contents of the write request are log information indicating contents of database processing executed by a computer, converting, when the contents of the write request are the log information, position information indicated in the log information into physical position information in the primary storage unit using a conversion table indicating a correspondence between logical position information recognized in the database processing on a side of the computer and physical position information in the primary storage unit, and modifying, according to the contents of the log information, data in a database area of the primary storage unit represented by the physical position information converted using the conversion table; and

a data transmission processing portion for transmitting the access request to a secondary storage unit.

10. A secondary storage of a secondary system for continuously executing, at occurrence of a failure in a primary database processing system, database processing by replacing the primary database processing system with a secondary database processing system, comprising:

a data reception processing portion for receiving an access request sent from a computer to a storage unit of a primary system, namely, a primary

storage unit;

a control processing portion for judging to determine whether the access request is a write request or a read request; and

a modify processing portion for judging, when the access request is a write request, to determine whether or not contents of the write request are log information indicating contents of database processing executed by a computer, converting, when the contents of the write request are the log information, position information indicated in the log information into physical position information in the secondary storage unit using a conversion table indicating a correspondence between logical position information recognized in the database processing on a side of the computer and physical position information in the secondary storage unit, and modifying, according to the contents of the log information, data in a database area of the secondary storage unit represented by the physical position information converted using the conversion table.

11. A disaster recovery system in which at occurrence of a failure in a primary database processing system, database processing is continuously executed by replacing the primary database processing system with a secondary database processing system, comprising:

a database management processing portion for



transmitting, when it is required to force contents of a database buffer of a computer in a storage unit of a primary system, namely, a primary storage unit, a write request of log information indicating contents of database processing executed for the database buffer from the computer to the primary storage unit and transmitting, when data as an access object in the database processing is absent from the database buffer, a read request of the data from the computer to the primary storage unit;

first control processing portion for receiving, by the primary storage unit, an access request sent from a computer and judging to determine whether the access request is a write request or a read request;

first modify processing portion for judging, when the access request is a write request, to determine whether or not contents of the write request are the log information, converting, when the contents of the write request are the log information, position information indicated in the log information into physical position information in the primary storage unit using a first conversion table indicating a correspondence between logical position information recognized in the database processing on a side of the computer and physical position information in the primary storage unit, and modifying, according to the contents of the log information, data in a database

area of the primary storage unit represented by the physical position information converted using the first conversion table;

a data transmission processing portion for transmitting the access request to a storage unit of a secondary system, namely, a secondary storage unit;

a data reception processing portion for receiving, by the secondary storage unit, the access request thus transmitted;

a second control processing portion for judging to determine whether the access request is a write request or a read request; and

a second modify processing portion for judging, when the access request is a write request, to determine whether or not contents of the write request are the log information, converting, when the contents of the write request are the log information, position information indicated in the log information into physical position information in the secondary storage unit using a second conversion table indicating a correspondence between logical position information recognized in the database processing on a side of the computer and physical position information in the secondary storage unit, and modifying, according to the contents of the log information, data in a database area of the secondary storage unit represented by the physical position information converted using the second conversion table.

12. A disaster recovery system according to claim 11, wherein when the access request is a read request, judgement is made to determine whether or not log information received according to a preceding write request received before the access request includes log information to modify data as an object of the read request, and when the log information thus received includes log information to modify the data of the read request, the data of the read request is modified according to contents of the log information.

13. A disaster recovery system according to claim 11, wherein the data is modified using log information selected from the log information, the log information belonging to a transaction committed in the database processing system.

14. A disaster recovery system according to claim 11, wherein the data of the database area is concurrently modified for each physical device corresponding to the data.

15. A disaster recovery system according to claim 11, wherein only a write request of log information is transmitted to the secondary storage unit, the write request being selected from the access request sent from the computer to the primary storage unit, and the database area of the secondary storage unit is modified according to contents of the log information.

16. A disaster recovery system according to claim 11, wherein an access request sent from the computer to

the primary storage unit is transmitted to the secondary storage unit, the access request including a read request to read data from the database area.

17. A program product to make a computer function as a primary storage unit of a primary system for continuously executing, at occurrence of a failure in a primary database processing system, database processing by replacing the primary database processing system with a secondary database processing system, the program product making a computer function as:

- a control processing portion for receiving an access request sent from a computer and judging to determine whether the access request is a write request or a read request;

- a modify processing portion for judging, when the access request is a write request, to determine whether or not contents of the write request are log information indicating contents of database processing executed by a computer, converting, when the contents of the write request are the log information, position information indicated in the log information into physical position information in the primary storage unit using a conversion table indicating a correspondence between logical position information recognized in the database processing on a side of the computer and physical position information in the primary storage unit, and modifying, according to the contents of the log information, data in a database

area of the primary storage unit represented by the physical position information converted using the conversion table; and

a data transmission processing portion for transmitting the access request to a secondary storage unit.

18. A program product to make a computer function as a secondary storage unit of a secondary system for continuously executing, at occurrence of a failure in a primary database processing system, database processing by replacing the primary database processing system with a secondary database processing system, the program product making a computer function as:

a data reception processing portion for receiving an access request sent from a computer to a storage unit of a primary system, namely, a primary storage unit;

a control processing portion for judging to determine whether the access request is a write request or a read request; and

a modify processing portion for judging, when the access request is a write request, to determine whether or not contents of the write request are log information indicating contents of database processing executed by a computer, converting, when the contents of the write request are the log information, position information indicated in the log information into physical position information in the secondary storage

unit using a conversion table indicating a correspondence between logical position information recognized in the database processing on a side of the computer and physical position information in the secondary storage unit, and modifying, according to the contents of the log information, data in a database area of the secondary storage unit represented by the physical position information converted using the conversion table.